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		HEINRICHS, CHRISTOPHER P		
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,087

Applicant(s)

DEML, ET AL. 

Examiner

Christopher P. Heinrichs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/7/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/21/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 12 recites the limitations "the software" and "the constructed partial header information" in lines 1 and 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-6, 11, 15-22, 36, 40-43, 45, and 46 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S Patent #6,728, 261 to Sasson et al.

6. With regard to claims 1-6, Sasson discloses a method comprising using information (cell header, fig 7 item 704) from incoming packets (cell, col 4 lines 64-65) to access stored partial header information (VCC table, fig 7 item 719, col 4 line 64), and in hardware (IWF, fig 2 item 214 and fig 3 item 120, which is a device that executes the entire method - may be deployed on various computing platforms as stated in col 6 line 62 – col 7 line 7. One example is a PC, which inherently includes both hardware and software working in concert where software executes a method using hardware as a pallet and storage medium. Therefore all steps of the method disclosed by Sasson, unless otherwise noted, an example of which is in drawing a distinction between separate hardware units, are performed by hardware and software both) using the stored partial header information and the incoming packets to calculate additional information, the additional information including at least one length field and at least one error check field, the output of the hardware (col 5 line 34) being the incoming packet encapsulated by one or more protocols, wherein the one or more protocols includes the UDP, IP and Ethernet protocols and wherein the additional information includes a UDP message length, a UDP checksum value, an IP header checksum, an IP total length value, and Ethernet frame payload length, and an Ethernet CRC value. Refer to col 4 line 60 – col 5 line 34, which describes encapsulating an ATM cell in UDP/IP (col 5 lines 22-23) and encapsulating the frame in MAC protocol (col 5 lines 24-24), specifically Ethernet (as shown in fig 5 item 502 and col 4 lines 56-57). Something that encapsulates data into UDP must inherently calculate UDP message length and a UDP

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checksum value as they are standard parts of a UDP header, and a UDP header is needed for UDP encapsulation. The same is true for encapsulation into IP with regard to the IP header checksum and IP total length value, and the same is true for an Ethernet frame payload length and CRC value. Fig 2 item 214 is the device that implements this method, and it is clear from the attached networks on either side that this device is a network interface as it is the only visible link between the two. The method uses incoming packets to calculate the length field in the UDP header and uses the stored partial header.

7. With regard to claim 11, the method is performed by the system disclosed by Sasson. Hence, software (see rejection of claim 1) constructs partial header information of fig 7 item 716, the pointer, which is information indicating the position in memory of partial header VCC table (fig 7 item 720) and stores it in the Port Table (fig 7 item 710).

8. With regard to claims 15-20, Sasson discloses a method that, for a session (series of consecutive packets that arrive at a port #, traffic of col 4 line 27-28 and fig 5 item 520), constructs and stores partial header information (constructs #vcc_i, fig 7 item 718, and stores #vcc_i, "ATM over IP", #ipudp, #udp, #mac items 718, 727, 730, 733, and 736 respectively, in VCC table of fig 7, the VCC table being the partial header information, wherein #ipudp and #udp are source and destination port address fields, col 5 lines 4-5), the partial header information including source and destination fields

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(see column headings of table), using information from incoming packets to access the stored partial header information (as set forth in the rejection of claim 1), the same partial header information being used for each incoming packet of the session (col 5 line 1, since all packets entering on a port are part of the same session, they use the same partial header information), in hardware (as set forth in the rejection of claim 1) using the stored partial header information and the incoming packets to calculate additional information, the additional information including at least one length field and at least one error check field, the output of the hardware being one of the incoming packets encapsulated by one or more protocols (as set forth in the rejection of claims 1-6).

9. With regard to claim 21, Sasson discloses all elements of the invention of claim 15 and further discloses that the first step of encapsulation by the reassembling unit (the hardware), the encapsulation into UDP as described in col 5 lines 22-23, includes constructing a length field, corresponding to the AAL packet data, that is a standard element of the UDP header and appending it to the AAL packet in the act of encapsulation.

10. With regard to claim 22, Sasson discloses all elements of the invention of claim 21 and further discloses that the hardware (see rejection of claim 1) further encapsulates the UDP packet into an IP packet as set forth in the rejection of claim 18, the encapsulation necessarily including in the IP header a length field, which is calculated by evaluating the length of the IP payload, which is the UDP packet, which

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includes the appended length. Therefore, the hardware uses the appended length to calculate the additional information in the IP header.

11. With regard to claims 36, 42-43, 45 and 46, Sasson discloses a network controller (IWF fig 2 item 214, which controls the interworking of networks 212 and 216) including software (see rejection of claim 1) adapted to store partial header information for a session (series of consecutive packets that arrive at a port #, traffic of col 4 line 27-28 and fig 5 item 520), the session indicated by information from incoming packets (port#, Fig 7 item 702), the stored partial header information including source and destination information for the UDP protocol, IP protocol, and an Ethernet protocol (VCC table of fig 7, columns 723, 724, and 725 of table show information for the three protocols, the source and destination information being the corresponding item in column 722, showing that an incoming packet which will use the three protocols comes from an ATM source and has an IP destination), the same partial header information being used for each incoming packet of the session, and hardware (see rejection of claim 1) receiving the stored partial header information (from somewhere else in hardware) and the incoming packets (packets come in to the IWF on route from network 212 to network 216 of fig 2), the hardware adapted to calculate additional information for outgoing data, the additional information including a UDP message length, a UDP checksum value, an IP header checksum, and IP total length value, an Ethernet frame payload length and an Ethernet frame CRC value, the output of the hardware being an AAL packet payload encapsulated according to the UDP protocol, IP protocol, and the

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Ethernet protocol (as set forth in the rejection of claim 1, AAL packet as shown in fig 5 item 512).

12. With regard to claims 40 and 41, Sasson discloses all aspects of the invention of claim 36 and further discloses and further discloses that the at least one error check field is a CRC field, as this is an inherent appendage during encapsulation into an Ethernet packet, and that at least one error check field is a checksum, as this is a standard portion of the header of the IP packet into which the incoming packet is encapsulated.

13. Claims 48 and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent #6,519,261 to Brueckheimer et al.

14. Regarding claims 48 and 49, Brueckheimer discloses a system (fig 1, enclosed by dotted line) that performs a method comprising buffering (col 12 lines 14-15) incoming packets and partial header information (incoming packets are egress SDUs of col 11 line 51, with the egress direction defined in col 11 lines 31-33, partial header information is described in col 11 lines 53-57, and the resultant SSCS SDU constitutes "incoming packets and partial header information") for a session (Traffic, col 11 line 46, for a given LCID col 11 line 54), producing a linked list of pointers to the partial header information for a session and buffered incoming packets to provide a linked data buffer (col 12 lines 21-31, wherein internal buffer control registers are the pointers), in

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hardware (fig 1, enclosed by dotted line) using the stored partial header information and the incoming packets from the linked data buffer to calculate additional information, the additional information including at least one length field and at least one error check field, the output of the hardware being the incoming packet encapsulated by one or more protocols (an output of the system can be a packet to an IP network as described by "interworking" in lines 1-3 of the abstract. An IP packet has, as inherent members of its header, an header error check field and a length field, so by virtue of the fact that the IP packet is created the additional information must have been calculated. The data that leaves the device is the incoming packet in the case of a data only packet, col 5 lines 46-49, as can be seen by the arrows from item 11 to item 15 of fig 1, and the packet is encapsulated (framed) by the IP framing circuit). The hardware receiving stored partial header information and packets and calculating the additional information is the system of fig 1 within the dotted line.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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16. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. Claims 8-10, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S Patent #6,728, 261 to Sasson et al.

18. With regard to claim 8-10 and 44, Sasson discloses all aspects of the invention of claims 1 and 36 but fails to disclose that the incoming packet is an AAL packet.

However, Subbiah discloses a network controller (fig 4 item 410) that receives AAL packets and encapsulates them in IP packets (col 5 lines 30-40). It would have been obvious to one ordinarily skilled in the art at the time of the invention to remove the steps of receiving the ATM cell and creating the AAL packet to arrive at the method of claim 8 and the network controller of claim 44, wherein the received packet is an AAL packet instead of an ATM packet. The motivation to do so would have been to utilize a simplified version of the invention of Sasson in an environment where the ATM cell to AAL packet recombination has already taken place. Furthermore, the AAL packets of the system disclosed by Subbiah are AAL2 packets, which have inherent to their headers CID information. These packets used with the system disclosed by Sasson

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would enter through a port as in fig 7 item 702, which is VC information as it indicates a pointer that indicates the VCC table 720).

19. Claims 7, 24-25, 27-31, 33-35, 39, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S Patent #6,728, 261 to Sasson et al. in view of U.S. Patent #6,801,452 to Subbiah.

20. With regard to claims 7 and 39, Sasson discloses all elements of claims 6 and 36, respectively, but fails to disclose that the network interface is a radio network controller of a UMTS system. However, Subbiah discloses a network controller (fig 4 item 410) that interfaces two radio networks (fig 4 items 420 and 430) and performs an AAL packet to IP packet encapsulation. It would have been obvious to one ordinarily skilled in the art at the time of the invention to add fig 4 items 450 and 452 disclosed by Subbiah to the network of fig 2 item (c) disclosed by Sasson to arrive at the invention of claims 7 and 39. The motivation to do so would have been to expand the system described by Sasson to include the popular wireless technology and control the expanded system with the network controller disclosed by Sasson, as it would also be obvious that the system disclosed by Sasson can perform that function provided the incoming and outgoing protocols were appropriate.

21. With regard to claims 24, 27 - 30, Sasson discloses all elements as set forth in the rejection of claims 1-4 and further discloses that the at least one error check field is

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a CRC field, as this is an inherent appendage during encapsulation into an Ethernet packet, and that at least one error check field is a checksum, as this is a standard portion of the header of the IP packet into which the incoming packet is encapsulated.

Sasson also further discloses reassembling AAL packets from ATM cells (col 5 lines 21-22) but discloses incoming packets as ATM cells as opposed to AAL packets.

However, Subbiah discloses in fig 5 a system that performs a method of receiving AAL / ATM packets (item 540) and encapsulating them into IP packets (fig 4 and col 5 lines 56-67). It would have been obvious to one ordinarily skilled in the art at the time of the invention to use the AAL packets, as opposed to the ATM cell, to access partial header information, calculate additional information, and encapsulate the AAL packet to arrive at the invention of claim 24. The motivation to do so would have been to utilize a simplified version of the invention of Sasson in an environment where the ATM cell to AAL packet recombination has already taken place, as is shown in the second dotted-line box from the left in fig 4 disclosed by Subbiah.

22. With regard to claim 25, Sasson and Subbiah disclose the elements of claim 24, and Sasson further discloses the first step of encapsulation by the reassembling unit (the hardware), the encapsulation into UDP as described in col 5 lines 22-23, includes constructing a length field, corresponding to the AAL packet data, that is a standard element of the UDP header and appending it to the AAL packet in the act of encapsulation.

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23. With regard to claim 31, Sasson and Subbiah disclose the elements of the method of claim 24, and Sasson further discloses software (see claim 1), stores a pointer (value stored in fig 7 item 718) to the stored partial header information in a linked data buffer (buffer is the storage space of fig 7 item 718, links depicted in fig 7 items 705 and 719).

24. With regard to claims 33 and 34, Sasson and Subbiah disclose the elements of claim 24, and Sasson further inherently discloses that the AAL packet length is added during reassembly. The AAL cell header has a packet length within it. Also, Sasson further discloses in col 5 line 28 that the hardware receives the AAL packet length, as the frame is sent to the uplink, a portion of the hardware, and within the frame is the AAL packet header that contains the length of the AAL packet.

25. With regard to claim 35, Sasson discloses all elements of the invention of claim 35 as set forth in the rejection of claims 1-6 and further discloses reassembling AAL packets from ATM cells (col 5 lines 21-22) but discloses incoming packets as ATM cells as opposed to AAL packets. However, Subbiah discloses in fig 5 a system that performs a method of receiving AAL / ATM packets (item 540) and encapsulating them into IP packets (fig 4 and col 5 lines 56-67). It would have been obvious to one ordinarily skilled in the art at the time of the invention to use the AAL packets, as opposed to the ATM cell, to access partial header information, calculate additional information, and encapsulate the AAL packet as the payload of the UDP protocol,

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subsequently encapsulate the UDP packet as the payload of the IP protocol, and subsequently encapsulate the IP packet as the payload of the Ethernet protocol to arrive at the invention of claim 35. The motivation to do so would have been to utilize a simplified version of the invention of Sasson in an environment where the ATM cell to AAL packet recombination has already taken place, as is shown in the second dotted-line box from the left in fig 4 disclosed by Subbiah.

26. With regard to claim 47, Sasson discloses all elements of claim 47 as set forth in the rejection of claim 36 and further discloses that said system controller includes a network interface (fig 2 item 214 interfaces between item 212 and item 216), but does not disclose that the system controller be for a radio network. However, Subbiah discloses a network controller (fig 4 item 410) that interfaces two radio networks (fig 4 items 420 and 430) and performs an AAL packet to IP packet encapsulation. It would have been obvious to one ordinarily skilled in the art at the time of the invention to add fig 4 items 450 and 452 disclosed by Subbiah to the network of fig 2 item (c) disclosed by Sasson to arrive at the invention of claim 47. The motivation to do so would have been to expand the system described by Sasson to include the popular wireless technology and control the expanded system with the network controller disclosed by Sasson.

27. Claims 23 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S Patent #6,728,261 to Sasson et al. in view of U.S. Patent #6,801,452 to

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Subbiah as applied to claim 24 above, and further in view of U.S. Patent #5,623,605 to Keshav et al.

28. With regard to claims 23 and 26, Sasson discloses all elements of the invention of claim 15, and Sasson and Subbiah disclose the elements of claim 24. The information of the incoming packets are the cell header disclosed by Sasson, Subbiah discloses using AAL2 packets (abstract) which have a CID field inherently included in their headers. The VC information is the table item 720 of fig 7. Sasson and Subbiah fail to explicitly disclose using AAL5 packets. However, Keshav discloses an interworking method using AAL5 packets (col 11 line 66 – col 12 line 1). It would have been obvious to one ordinarily skilled in the art to include using the AAL5 packets disclosed by Keshav in the method disclosed by Sasson and Subbiah to arrive at the inventions of claims 23 and 26. The motivation to do so would have been to include non-delay sensitive functionality in the method disclosed by Sasson and Subbiah, as this is what AAL5 packets are commonly used for.

29. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent #6,728, 261 to Sasson et al. in view of U.S. Patent #6,801,452 to Subbiah as applied to claim 31 above, and further in view of Brueckheimer.

30. Sasson and Subbiah disclose the aspects of the method of claim 31 but fail to disclose that the software (see claim 1) stores a pointer to the buffered incoming packet

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in the linked data buffer. However, Brueckheimer discloses these elements as set forth in the rejection of claim 48. It would have been obvious to one ordinarily skilled in the art at the time of the invention to include buffering incoming packets and a linked-list with pointers to incoming packets disclosed by Brueckheimer with the network controller disclosed by Sasson to arrive at the invention of claims 32. The motivation to do so would have been that the buffer and linked list provide a well-known method for handling the incoming packets of the network controller, and it would be obvious that the method disclosed by Sasson would need some way of handling incoming packets.

31. Claims 12-13, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasson in view of Brueckheimer.

32. With regard to claim 13, Sasson discloses all aspects of the method of claim 1 but fails to disclose that the hardware unit includes protocol header insert units. However, Brueckheimer discloses a method that has a hardware unit (fig 1, within dotted line) that includes protocol header insert units (fig 8, "PHY Device" and "ATM Device"). It would have been obvious to one ordinarily skilled in the art at the time of the invention to the protocol header insert units disclosed by Brueckheimer with the method disclosed by Sasson to arrive at the invention of claim 13. The motivation to do so would have been to use separate hardware units to insert protocol headers to promote processing speed, as suggested in page 2 paragraph 5 of the specification of the instant application.

33. With regard to claims 12, 37, and 38, Sasson discloses all elements of the network controller of claim 36, discloses as set forth in the rejection of claim 36 that the software stores the partial header information, and discloses that a linked list (links shown in fig 7 items 705 and 719) includes a first pointer (value of #vcc_1 within fig 7 item 718) to partial header information (VCC table) which is the same for each incoming packet of the session (VCC is a lookup table and it can be seen from fig 7 that it is accessed as a function of port number, which defines the session), but fails to explicitly disclose that the software stores the incoming packet in a buffer and that a linked list includes a pointer to the buffered incoming packet. However, Brueckheimer discloses these elements as set forth in the rejection of claim 48. It would have been obvious to one ordinarily skilled in the art at the time of the invention to include buffering incoming packets and a linked-list with pointers to incoming packets disclosed by Brueckheimer with the network controller disclosed by Sasson to arrive at the invention of claims 37 and 38. The motivation to do so would have been that the buffer and linked list provide a well-known method for handling the incoming packets of the network controller, and it would be obvious that the controller disclosed by Sasson would need some method of handling incoming packets.

Allowable Subject Matter

34. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Oda, et al. (U.S. Patent #6,522,667), Network Interworking Device for IP Network/ATM Network.
- b. Sylvain, (U.S. Patent #6,819,678), Interworking of Dissimilar Packet Networks for Telephony Communications


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Heinrichs whose telephone number is 571-272-8397. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.Heinrichs
A.U. 2663


RICKY NGO
PRIMARY EXAMINER

5/2/05